

CLAIMS

1. Screen separating apparatus comprising
a chassis for supporting a screen frame carrying a
5 sieve screen, said chassis providing a first bearing
surface;
at least one second bearing surface opposed to said
first bearing surface such that the screen frame can be
clamped between the first and second bearing surfaces; and
10 at least one expandable element mountable in the
chassis to be between said first and second bearing surfaces
and expandable in a direction transverse to said bearing
surfaces to effect said clamping of the screen frame;
characterised by
15 one or more clamping members the or each of which is
movable between a non-deployed position, in which said
screen frame can be lifted in said transverse direction away
from said first bearing surface for removal from the
chassis, and a deployed position, in which the clamping
20 member is located relative to the chassis to provide said
second bearing surface or one of a combination of said
second bearing surfaces.
2. Apparatus according to Claim 1, wherein the second
bearing surface or the combination of second bearing
surfaces extends over at least half of the circumference of
the screen frame.
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3. Apparatus according to Claim 2, wherein said clamping
member comprises a sheath which can be fastened to the
chassis and which has an in-turned flange portion arranged
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to provide said second bearing surface or said combination of second bearing surfaces.

4. Apparatus according to Claim 3, wherein said sheath is
5 of unitary construction.

5. Apparatus according to Claim 4, wherein said sheath is cylindrical and the apparatus includes a plurality of bayonet coupling fitments spaced around the chassis whereby
10 the sheath can be releasably fastened to the chassis.

6. Apparatus according to Claim 3, wherein the sheath is formed in two parts each of which is pivotable, at one end about a respective hinge axis relative to the chassis to move between a position in which the sheath part embraces a respective part of the chassis and a position in which the
15 sheath part is swung away from said respective part.

7. Apparatus according to Claim 6, wherein the two sheath
20 parts are hingedly mounted with the hinges adjacent, and free ends of the sheath parts are each adapted to lie adjacent one another when in their chassis - embracing positions, with a locking device being provided for securing the sheath parts in said chassis - embracing positions.
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8. Apparatus according to Claim 7, wherein said locking device is magnetic.

9. Apparatus according to Claim 3, wherein the sheath
30 comprises a plurality of segments, each pivotable about a respective hinge axis lying in a plane substantially parallel to the plane of the sieve screen, such that each

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segment can be moved between a first position in which the segment embraces a respective part of the chassis and is circumferentially aligned with adjacent segments, and a second position in which the segment is lowered away from
5 said respective part.

10. Apparatus according to Claim 9, wherein said respective hinge axes include an over-centre toggle construction operable to draw the in-turned flange portion of the sheath
10 segment towards said first bearing surface.

11. Apparatus according to any of Claims 3 to 10, further comprising a cover to rest on said screen frame and enclose the sieve screen, the cover having a peripheral shoulder portion for engagement by said in-turned flange portion of
15 the sheath.

12. Apparatus according to Claim 11, wherein said cover has a skirt portion depending from said shoulder portion to
20 engage said sieve frame.

13. Apparatus according to any of Claims 1 to 10 further comprising a removable cover to enclose a product region above the sieve screen, said one or more clamping members
25 being effective when in the clamping position to retain the cover clamped, by expansion of said expandable element, with the screen frame between the first and second bearing surfaces, and being movable when the expandable member is not expanded, from said clamping position to permit removal
30 of said cover.

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14. Apparatus according to Claim 1 or Claim 2 comprising a removable cover to enclose a product region above the sieve screen, said cover providing said clamping member and having an extended skirt portion providing a sheath which can be
5 fastened to the chassis and a peripheral flange portion providing said second bearing surface.

15. Apparatus according to any preceding claims further comprising a hopper mounted in said chassis to collect fines
10 passing through the sieve screen, said hopper having an annular shelf portion extending between said first and second bearing surfaces to be clamped therebetween together with the screen frame.

15 16. Apparatus according to any preceding claim and including at least one said screen frame.

17. Apparatus according to any preceding claim wherein said chassis is adapted to support a circular screen frame.
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18. Apparatus according to any preceding claim wherein said at least one expandable member comprises an inflatable member.

25 19. Apparatus according to Claim 18, wherein said inflatable member is of bellows construction.

20. Apparatus according to Claim 19, wherein said chassis is adapted to support a circular screen frame and said at
30 least one expandable member is of annular shape.

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21. Apparatus according to any of Claims 1 to 17, wherein said at least one expandable member comprises a piston-and-cylinder arrangement.

5 22. Apparatus according to Claim 21, wherein said piston-and-cylinder arrangement is pneumatically operable.

23. Apparatus according to Claim 21, wherein said piston-and-cylinder arrangement is hydraulically operable.

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24. Apparatus according to any of Claims 1 to 17, wherein said at least one expandable element comprises an annular ring and at least two pneumatic or hydraulic rams operable to drive the ring to effect said clamping.

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25. A vibratable screen separator comprising a chassis providing a continuous bearing surface for directly or indirectly supporting a planar sieve frame, and at least two clamping members, each of which is elongate and is mounted to clamp a respective length of the sieve frame against the frame bearing surface when in a first position and to be movable between said first position and a non-clamping position.

25 26. Apparatus according to any preceding claim and including

a cover to enclose a space above the sieve screen to contain material to be separated,

30 a hopper to collect fines passing through the sieve screen,

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at least one inner seal to seal between the cover and the hopper around the circumference of the screen frame when the apparatus is in use,

a sheath surrounding said inner seal,

5 at least one outer seal to seal between the sheath and at least one of the cover and the hopper to provide an enclosed volume between the sheath, the cover and the hopper,

and an inlet connecting to said enclosed space to
10 enable said enclosed space to be pressurised.

27. Screen separating apparatus comprising
a chassis for supporting a screen frame carrying a sieve screen,

15 a cover to enclose a space above the sieve screen to contain material to be separated,

a hopper to collect fines passing through the sieve screen,

at least one inner seal to seal between the cover and
20 the hopper around the circumference of the screen frame when the apparatus is in use,

a sheath surrounding said inner seal,

at least one outer seal to seal between the sheath and
25 at least one of the cover and the hopper to provide an enclosed volume between the sheath, the cover and the hopper,

and an inlet connecting to said enclosed space to enable said enclosed space to be pressurised.

30 28. Apparatus according to Claim 27 wherein said chassis is adapted to support a circular sieve frame and said sleeve is cylindrical.

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29. Apparatus according to Claim 28, wherein said sleeve includes an in-turned flange which engages and seals to the cover, in use, and the apparatus includes bayonet coupling
5 fitments by which the sleeve can be secured to the chassis.

30. Apparatus according to Claim 27 or Claim 28, wherein the cover has an extended skirt forming said sheath.

10 31. Apparatus according to any of Claims 27 to 30 including one said outer seal between the sheath and the hopper.

32. Apparatus according to Claim 31, wherein said outer seal between the sheath and hopper comprises a first seal
15 between the hopper and the chassis and a second seal between the chassis and the sheath.

33. A screen separator substantially as hereinbefore described with reference to the accompanying drawings.